



# Digital Operations Changes the Game in Manufacturing



# DIGITAL OPERATIONS CHANGING THE GAME IN MANUFACTURING

Digital operations combines advanced analytics and IIoT technologies to drive new, previously unattainable performance improvements in production.

-  **MORE RELIABILITY**
-  **HIGHER QUALITY**
-  **BETTER YIELD**
-  **LOWER COST**
-  **LESS DOWNTIME**

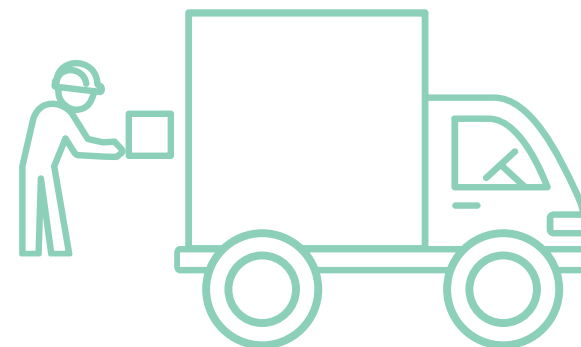
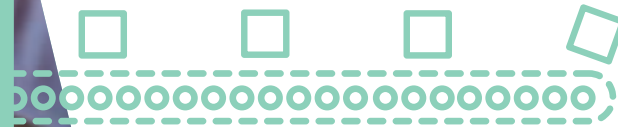


# THE VALUE OF REAL TIME

The wealth of data available through IoT technologies makes it possible to improve equipment reliability and performance, drive down cost, and improve uptime.

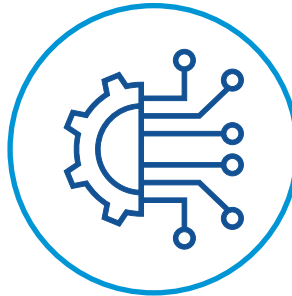
The ability to evaluate data in real time from multiple, systems, processes and equipment enables management and staff to see and fix problems rapidly improving performance and quality management.

Dynamic data aggregation and analysis across production tracking systems, enterprise applications and equipment on the factory floor enables optimization of production and supports the full integration of supply chains.



# NEW TECHNOLOGIES IN DIGITAL OPERATIONS

TO COMPETE AND PROSPER IN THE EMERGING DIGITAL ECONOMY, INDUSTRIAL FIRMS MUST MASTER THE INDUSTRIAL INTERNET OF THINGS (IIOT).



## IIOT

Sensors and the data they generate provide real-time information on equipment, processes, efficiency and safety-related activities.

But there is no business value in the data generated unless it can be captured and analyzed and then translated into meaningful insights.



## ADVANCED ANALYTICS

Analytic capabilities and processes that capture and analyze IIoT data and combine this with information from process control and other enterprise systems to deliver business insights and real time process information.

# NEW TECHNOLOGIES IN DIGITAL OPERATIONS



## ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

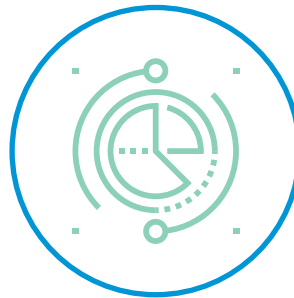
Enable decisions to be made and action to be taken that normally require human expertise and intervention.

Artificial intelligence requires the use of machine learning and data analytics to support intelligent decision making.

Machine learning describes the ability for software to adapt as additional information is compiled and decisions are made.

Artificial Intelligence and machine learning enhance performance, augment capabilities, and improve the efficiency and effectiveness of subject matter experts in their field.

# NEW TECHNOLOGIES IN DIGITAL OPERATIONS



## REAL-TIME ANALYTICS

Refers to applying logic and analytics to data as soon as it is produced. It enables insights to be developed, conclusions drawn, and action taken rapidly based on immediately available information.



## PREDICTIVE ANALYTICS

Leverages machine learning, advanced analytics, historical data, and situational data to make informed decisions, forecast demand, respond to changes in the supply chain, and prevent downtime.

# STRATEGIC PLAY: DATA-DRIVEN PREDICTIVE MAINTENANCE

IoT sensors on critical assembly equipment deliver insights in real time to enable action to be taken rapidly before failure occurs to the detriment of production yields.

Machine learning algorithms and predictive analytics determine when to best schedule maintenance to:

- Minimize production impact.
- Prevent catastrophic failure of machines.
- Reduce the number of manual inspections.
- Extend asset life.
- Reduce repair costs.

Data-driven predictive maintenance uses data intelligence directly from the factory floor instead of estimates or best guesses. It enriches this data with technician logs, maintenance records, and machine specifications to improve forecast accuracy.

**FURTHER ENHANCEMENTS WITH DIGITALIZATION OF THE MAINTENANCE PROCESSES AND SUBJECT MATTER KNOWLEDGE IMPROVE OVERALL UPTIME OFTEN BY 20% OR MORE WHILE REDUCING COST.**



**REDUCE  
DOWNTIME**



**INCREASE  
THROUGHOUT CAPACITY**



**LOWER  
OPERATING COSTS**

# STRATEGIC PLAY: ASSET PERFORMANCE MANAGEMENT

Speed diagnostics and improve first time fix rate through machine learning, predictive analytics, and the ability to suggest the next best action for equipment repair.

Detect anomalous behaviors with speed and agility reducing the mean time to repair by:

- Rapidly identifying incident symptoms
- Quickly understanding areas requiring investigation and action
- Improving protection against IoT intrusion points

Enable automated resolution for certain classes of problems.

- Freeing up scarce resource time to solve complex cases
- Lowering operating expenses

Continuous digitalization of learning feeds the knowledge base to drive continuous improvement.



**INCREASE  
OUTPUT ACTIVITY**



**LOWER  
OPERATING COSTS**



**IMPROVE  
OUTPUT QUALITY**



# STRATEGIC PLAY: STREAMLINING PRODUCTION PROCESSES

Tapping into sensor data that is collected but not retained and combining this with structured and unstructured data from plant, enterprise and industry systems uncovers:

- Unrecognized trends and patterns that provide answers to questions that were not previously considered.
- Nuanced issues that were previously missed.
- Methods to better plan and schedule production.

Using insights gained from advanced analytics enables you to define, continuously refine, and then monitor key performance indicators for complex operational processes.

Gaining visibility to complex manufacturing processes in real time to:

- Spot anomalies.
- Determine root cause.
- Take corrective action rapidly.
- Manage processes by exception.



**REDUCE  
CYCLE TIME**



**INCREASE  
THROUGHPUT**



**IMPROVE ASSET  
UTILIZATION**

# STRATEGIC PLAY: OPTIMIZE SUPPLY CHAINS

Integrating structured and unstructured data across supply chain systems, processes and sources leveraging advanced analytics capabilities will support:

- Identification of all critical links in supply chain processes.
- Discovery of hidden patterns and trends to improve efficiency.
- Anticipation and prevention of disruptions or imbalances in inventories.
- Identification and resolution of quality defect trends and root cause.
- Gaining end-to-end supply network visibility.
- Monitoring performance of cross-functional processes.

**A MAJOR JET MANUFACTURER PREDICTS THEY WILL BUILD A JET IN ONE DAY, A PROCESS THAT USED TO TAKE MONTHS OR YEARS, LEVERAGING ADVANCED AND PREDICTIVE ANALYTICS.**



**IMPROVE  
WORKING CAPITAL**



**MAKE BETTER  
DECISIONS**



**IMPROVE  
OUTPUT QUALITY**

# SUCCESS FACTORS TO EFFECTIVE EXECUTION

MANUFACTURERS REQUIRE A CAPABLE, EXTENSIBLE AND AGILE IOT AND ANALYTICS PLATFORM TO DELIVER RAPID RETURNS.



**FAST:** Capable of processing high volume and velocity data, millions of event per second in real time



**EXTENSIBLE:** An open platform that integrates with the existing IT/OT technology stack and supports changes to underlying technology



**OPERATIONAL VISIBILITY:** Delivers the visual insights from the data to drive performance management improvements and support changes in behavior



**AGILE:** Enables the citizen developers/ analysts to extend digitalization opportunities for continued innovation and process improvement using a visual low code development environment



**RAPID RETURN:** Fast solution on boarding, application build, and demonstrable returns

# VIA BY VITRIA FOR DIGITAL OPERATIONS

AN AGILE ANALYTICS PLATFORM ENABLING RAPID DESIGN, DEVELOPMENT, AND DEPLOYMENT OF DIGITAL OPERATION SOLUTIONS THAT SOLVE PROBLEMS BY MAKING SENSE OF DATA – EVEN THE VOLUME AND SPEED OF DATA COMING FROM IOT DEVICES.

## **FASTER IMPLEMENTATION, LOWER COST AND RISKS**

by using pre-designed solutions templates and a model-driven development approach

**EXTENSIBLE AND SIMPLER** data integration & correlation through pre-designed interfaces

## **PROVEN, COMPLETE AND SCALABLE**

platform technologies for the most complex digital operation use cases, incorporating real-time computation, Artificial Intelligence and automation

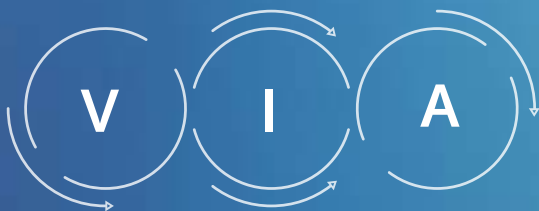
**COMPLETE** digital operations roadmap that leverages real-time analysis and artificial intelligence to identify and correlate anomalies, discover root cause and improve prediction accuracy

**OPEN** framework to tailor and expand the solutions beyond existing data sources and use cases

## **EXPERIMENTATION FRIENDLY**

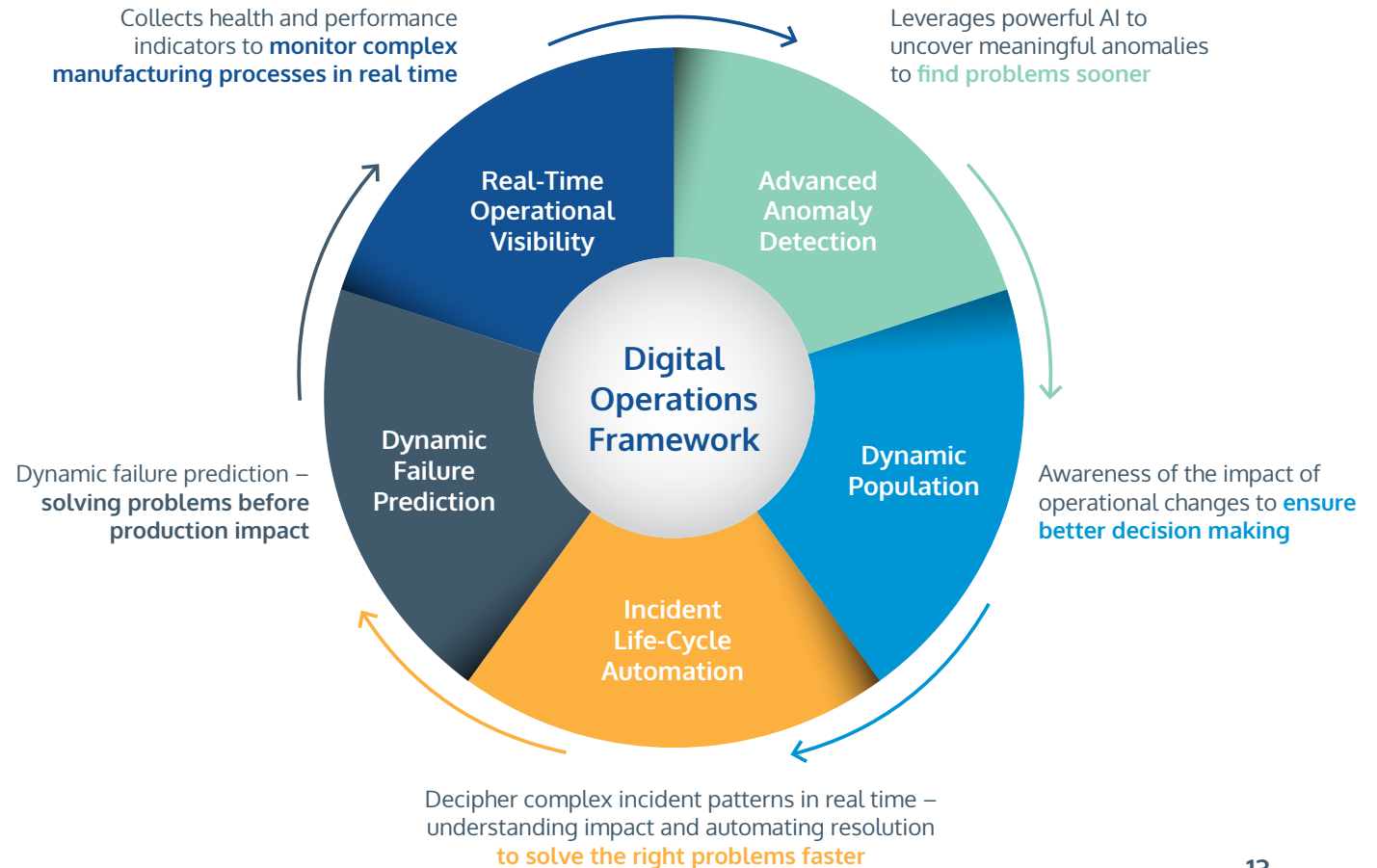
to rapidly test new hypotheses and increase operational efficiency

REDUCE DOWNTIME | LOWER OPERATING COSTS | IMPROVE QUALITY  
REDUCE CYCLE TIME | RAISE THROUGHPUT | INCREASE ASSET UTILIZATION  
IMPROVE WORKING CAPITAL | MAKE BETTER DECISIONS

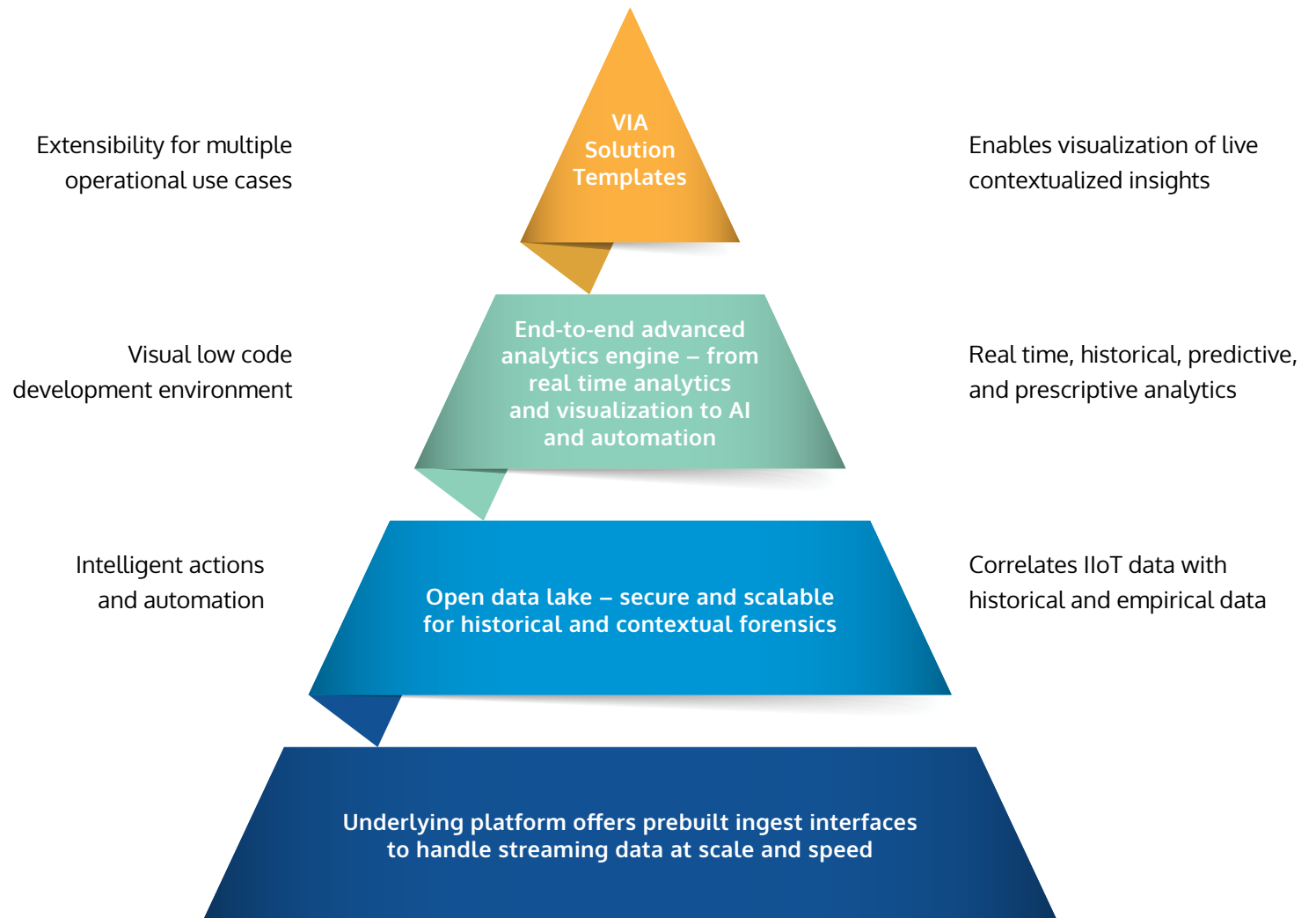


# OUR DIGITAL OPERATIONS SOLUTION FRAMEWORK

SUPPORTING YOUR JOURNEY; ENABLING CONTINUOUS IMPROVEMENT



# DIGITAL OPERATIONS - HOW WE MAKE IT HAPPEN



# CHANGE YOUR GAME WITH DIGITAL OPERATIONS

Easy to start with a single data stream or use case.

Use the **VIA SOLUTION ACCELERATOR** –  
the VIA platform and templates

Or choose the **VIA CORE PLATFORM AND TOOLS**  
for serious developers.



# ARE YOU READY TO BE A **GAME CHANGER?**

ACCELERATE YOUR JOURNEY TO  
DIGITAL OPERATIONS WITH VITRIA

Call for a free consultation

See a demonstration of how VIA's  
development environment can get  
you on the move quickly

